Attorney Docket No. MTKI-04-355A

IN THE UNITED STATES PATENT & TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

IN RE APPLICATION OF:	§	
	§	
Shipeng Li	§	
	§	
SERIAL NO: **09/312,797**	§	GROUP ART UNIT: **2613**
	§	
CONFIRMATION NO.: **3062**	§	EXAMINER: **Y. Young Lee**
	§	
FILED: **May 17, 1999**	§	
	§	
FOR: **METHOD AND APPARATUS FOR GENERIC SCALABLE SHAPE CODING**	§	

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By: /Kristen Irwin/
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REPLY BRIEF UNDER 37 C.F.R. § 41.41

SIR:

Appellants hereby reply to the Examiner's Answer mailed on August 19, 2008. This Reply is intended to supplement the Appeal Brief as originally filed on February 3, 2003, and as amended on July 30, 2004. The arguments presented in the prior Appeal Briefs are still relied upon.

ARGUMENT

The rejection of Claims 1, 2, and 27-30 under 35 U.S.C. § 102(e) as being anticipated by Lee et al (U.S. Patent No. 5,748,749, "Lee") remains respectfully traversed. The Examiner's Answer repeats the mischaracterization of Lee with respect to the present invention.

The present invention relates to a method for coding an input object mask, where the input object mask has a plurality of regions. The method (as recited in independent Claim 1) includes the steps of (a) assigning at least one symbol to each of the plurality of regions, (b) coding the assigned symbols of the input object mask, (c) decomposing the input object mask into a plurality of object mask layers of different spatial resolution, (d) coding a base object layer of the plurality of object mask layers, and (e) coding a next higher layer of the plurality of object mask layers in accordance with information from a lower object mask layer.

Because the present invention relates to a method for coding an input object mask, it is important to understand what an object mask is. As taught in the specification of the present application, an object mask indicates the arbitrary shape of an image or video object and the region in which the texture of this object needs to be coded. The object mask contains shape information having one of two possible values for each pixel: transparent or opaque (where transparent means the corresponding pixel is outside of an object and opaque means the corresponding pixel is within the object). Thus, an object mask includes binary shape information.

In one example of an object mask, FIG. 1(a) of the present application shows such an arbitrary shaped object 100 and FIG. 1(b) shows the corresponding binary object mask 110 that

identifies the shape and texture region of the object. Although the arbitrary shaped object 100 contains specific texture information, illustrated by the different grayscale shading, such specific texture information is not captured by the object mask. The exemplary object mask contains only the shape information and whether a pixel is within an object. (See specification, page 2, lines 1-13.)

The object mask is not, therefore, a representation of a full frame. The present invention relates to a method that decomposes the input *object mask* into a plurality of *object mask* layers of different spatial resolution. In contrast, Lee fails to teach or suggest any steps relating to decomposition of an object mask. Therefore, Lee fails to disclose all of the limitations of independent Claim 1.

The Examiner's Answer repeats the assertion that FIG. 16 of Lee shows "where the input object mask has a plurality of regions." However, FIG. 16 does not have any relation to an object *mask*. Lee teaches that FIG. 16 is "a simplified fragmentary representation of a *display screen* showing the *image frame* of FIG. 7B" (see, e.g., Lee, col. 4, lines 57-58). Lee further discloses that FIG. 16 includes "object 204b." However, Lee does not teach, suggest, or imply, that FIG. 16 shows an object mask (e.g., shape information indicating whether a pixel is part of an object). Therefore, the Examiner is incorrect in the assertion that FIG. 16 of Lee discloses an input object mask where the input object mask has a plurality of regions, because FIG. 16 fails to show an object mask at all.

The Examiner's Answer also repeats the assertion that FIG. 35 of Lee shows assigning at least one symbol to each of the plurality of regions. FIG. 35 does not show an object mask (and therefore does not show the plurality of regions in an object mask, as recited by Claim 1 of the

present application). Lee teaches that FIG. 35 "illustrates how a frame of video can be divided into the objects in the frame" (see, e.g., Lee, col. 5, lines 54-55). FIG. 35 therefore does not disclose assigning at least one symbol to each of the plurality of regions in an object mask.

The Examiner's Answer further repeats the assertion that FIG. 38 of Lee shows coding the assigned symbols of the input object mask contextually in accordance with neighboring regions. FIG. 38 does show "an object-based video coding method." However, FIG. 38 only shows a shape coding block 1632 passing shape information to a multiplexer 1644. FIG. 38 does not show — and nowhere does Lee disclose or suggest — coding an input object mask contextually in accordance with neighboring regions.

The Examiner's Answer also repeats the assertion that FIGS. 16 and 35 of Lee show decomposing the input object mask into a plurality of object mask layers of different spatial resolution. As shown above, FIG. 16 shows an image frame rather than an object mask. Furthermore, FIG. 35 does not show — and nowhere does Lee disclose or suggest — decomposing an *object mask* into a plurality of *object mask layers* of different spatial resolution.

The Examiner's Answer introduces the article "Wavelets for a Vision" by Stéphane Mallat ("Mallat") to illustrate the wavelet coding technique. However, Mallat relates to multiresolution decomposition of images (see, e.g., FIGS. 1 and 2). A full text search of Mallat reveals that Mallat does not discuss object masks and does not disclose any operations on masks of any type. Therefore, none of the art referenced by the Examiner, alone or in combination with Lee, teaches or suggests decomposing an object mask (rather than an image frame) into a plurality of object mask layers.

Thus, the Examiner's Answer fails to substantiate the Examiner's assertions that Lee discloses or suggests all of the limitations of independent Claim 1 of the present application. Therefore, the rejection of independent Claim 1 and dependent Claim 2 under 35 U.S.C. § 102(e) as being anticipated by Lee is improper, and should be withdrawn.

Independent claims 27 and 29 contain substantially similar limitations to independent Claim 1. Therefore, for the same reasons given with respect to independent Claim 1, above, the rejection of independent Claims 27 and 29, and of dependent Claims 28 and 30 under 35 U.S.C. § 102(e) as being anticipated by Lee is improper, and should be withdrawn.

CONCLUSION

Thus, the Appellants submits that all of the c1aims presently in the application are patentable over Lee under the provisions of 35 U.S.C. § 102(e). Consequently, Appellants believe all these Claims are presently in condition for allowance.

For the reasons advanced above, Appellants respectfully urge that the rejection of Claims 1, 2, and 27-30 as being anticipated under 35 U.S.C. §102(e) is improper. Reversal of the rejections of the Office Action is respectfully requested.

Respectfully submitted,

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